CHOLESTERIC LIQUID CRYSTAL CELL DEVICES AND SYSTEMS

ABSTRACT OF THE DISCLOSURE

Cholesteric liquid crystal cell units are used for reflecting or transmitting incident light responsive to control signals. A cholesteric liquid crystal cell unit has a first cholesteric liquid crystal cell and a second cholesteric liquid crystal cell. The second cholesteric liquid crystal cell respectively reflects or transmit lights from the first cholesteric liquid crystal cell responsive to a control signal when the first cholesteric liquid crystal cell reflects circularly polarized light of one state or transmits the incident light. In one embodiment of the cell unit, a π-phase waveplate element is located between the first and second cholesteric liquid crystal cells. With the cholesteric liquid crystal cell units, devices such as optical switches, and WDM add/drop multiplexers, and optical switch systems with arrays of input and output optical fibers between a switching matrix formed by the cholesteric liquid crystal cell units, may be constructed.